

Monthly Progress Report #3

September 2004

Falcon Refinery Superfund Site
Ingleside
San Patricio County, Texas
TXD 086 278 058

Prepared for

National Oil Recovery Corporation
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October 8, 2004

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1.0 INTRODUCTION

This third Monthly Progress Report is submitted in accordance with the Falcon Refinery Site Administrative Orders on Consent for Removal Action and Remedial Investigation / Feasibility Study between the U.S. Environmental Protection Agency (U.S. EPA) and National Oil Recovery Corporation (NORCO).

This Monthly Progress Report and subsequent reports will address activities associated with both of the orders.

The next monthly progress report covering October, 2004 will be submitted on or before November 10, 2004.

2.0 COMPLETED ACTIVITIES

2.1 Removal Action Activities

The asbestos assessment report has been received and minor amounts of asbestos were noted. Identified asbestos containing materials (ACM) are predominantly comprised of gaskets in the valves and piping. Minor additional ACM areas were noted that will not interfere with any demolition activities. The final report will be provided in next months update.

The perimeter fence is complete and the facility is locked or manned at all times. Water service is now available at the site. Electricity has not been provided by the area utility due to a backlog of area work.

A safe zone has been created for the operations of Superior Crude Storage (Superior), which uses several above ground storage tanks to store crude oil. Orange fencing has been placed around the areas that truck drivers for Superior use to deliver their shipments of crude oil. Superior personnel have been advised that they must remain inside the safe zone.

Contents of the above ground storage tanks were gauged and the volume calculations are provided in Appendix A. Based on the gauging approximately 6.8 million gallons of liquid and 62,000 gallons of sludge are in the tanks (Table 1).

Subcontractors that are bidding to perform demolition and recycling activities have been to the site. When a subcontractor is selected the EPA will be notified and the site safety plan may be augmented.

An emergency first aid station has been established at the on-site project trailer. Safety equipment including fire suppression equipment, safety glasses and hard hats have been purchased and are ready for use.

Sanitary facilities are now available at the site.

Waste codes have been obtained and liquid disposal documentation and approvals have been obtained from the TCEQ and EPA.

Grossly contaminated soil was evaluated and approximately 6,000 yds³ of soil will be excavated after tank demolition.

2.2 Remedial Investigation / Feasibility Study (RI/FS)

The draft 1) RI/FS Work Plan, 2) RI/FS Field Sampling Plan, 3) RI/FS Quality Assurance/Quality Control Project Plan (QA/QCPP), 4) Safety and Health Plan and the 5) Quality Management Plans were provided to the EPA, TCEQ and applicable state and federal trustees.

3.0 CHANGES MADE IN THE PLANS DURING THE REPORTING PERIOD

Though not explicitly stated in the Removal Action Workplan, the anticipated method of liquid waste disposal was 1) repair Tank 30, 2) put all liquid waste into Tank 30 (provided the results of the compatibility study were positive), 3) permit an on-site injection well and 4) dispose of the liquids in the injection well.

An updated cost/benefit analysis was performed of all available disposal options and the option selected was disposal at the EPA and TCEQ permitted injection well operated by Texas Molecular in Corpus Christi. Disposal of the liquid waste will involve loading three tankers a day each making three round trips, for a total of 45,000 gallons a day.

All applicable documentation and approvals have been obtained and the disposal will begin during the month of October.

4.0 COMMUNITY RELATIONS

The first project related community meeting was held on September 16, 2004 at 7 P.M. at the Ingleside City Hall, 2671 San Angelo, Ingleside, Texas. Approximately 40 people including city and county officials attended the meeting. The PowerPoint presentation from the community meeting is available on the project web site.

The project web site www.falcon-refinery.com is operational and available for review by the public. Included at the web site are links to all approved project documents, PowerPoint presentations, contact information, site photographs, monthly progress reports and notifications of future meetings when they are announced.

5.0 CHANGES IN PERSONNEL DURING THE REPORTING PERIOD

Bill Hoskins, who has significant environmental and superfund experience, will serve as the on-site project manager. Mr. Hoskins can be reached at (361) 775-0173.

6.0 LIST OF PROJECTED WORK FOR THE NEXT TWO MONTHS

6.1 Removal Action Work projected for the next two months includes:

- Performing the final electricity connection for the site;
- Selecting specialized demolition contractor(s);
- Removing grossly contaminated soil;
- Initiating construction of a bioremediation cell to treat impacted soil; pending EPA and TCEQ approval;
- Initiating the removal of liquids from pipelines and storage tanks;
- Demolition of some storage tanks.
- Recycling of crude oil in the storage tanks.

6.2 RI/FS Work projected for the next two months includes:

- Making amendments to the RI/FS Work Plan, pending comments from the EPA and submitting the final RI/FS Work Plan.
- Implementing the RI/FS Work Plan.

7.0 COPIES OF LABORATORY / MONITORING DATA

Results of the compatibility study are provided in Appendix B.

Table 1

TABLE 1
Liquid and Sludge Volumes
Falcon Refinery Superfund Site

North Site

Tank	Dimensions		Capacity (gal.)	Tank Contents	
	Height (ft.)	Diameter (ft.)		Liquid (gal.)	Sludge (gal.)
2	24.0	50.0	352,534	168,923	3,672
7	32.0	47.3	420,000	380,624	0
X1	15.0	16.5	23,994	0	1,866
X2	18.0	16.5	28,793	0	1,333
X3	18.0	16.5	28,793	0	1,200

North Site Total Volume (gal.): 549,547 8,071

South Site

Tank	Dimensions		Capacity (gal.)	Tank Contents	
	Height (ft.)	Diameter (ft.)		Liquid (gal.)	Sludge (gal.)
N1	15.4	12.0	13,044	1,622	494
N2	15.4	12.0	13,044	8,743	0
Y1	10.3	19.0	21,741	10,075	1,061
10	40.0	94.5	2,100,000	28,071	0
17	32.2	33.3	210,000	17,409	0
18	32.2	33.3	210,000	157,771	3,808
19	32.2	33.3	210,000	0	0
20	32.2	33.3	210,000	199,662	3,264
21	32.2	33.3	210,000	174,636	2,720
22	32.2	33.3	210,000	25,026	0
23	32.2	33.3	210,000	67,461	0
24	32.2	33.3	210,000	183,885	3,264
26	40.0	107.8	2,730,000	2,730,000	0
27	40.0	107.8	2,730,000	2,690,188	39,813

South Site Total Volume (gal.): 6,294,547 54,424

Refinery Total Volume (gal.): 6,844,094 62,495

Appendix A





SITE: NORCO Falcon Refinery
DATE: 8/30/04 through 9/2/04

TANKS GAUGED:

North Site – 2, 7, X1, X2, X3
(X1,2,3 are small tanks in NE corner of North Site)

South Site – 10, 17, 18, 19, 20, 21, 22, 23, 24, 26, 27, 30, N1, N2, Y1
(N1,2 are small tanks to NW of 17-24; Y1 is small tank to SE of 17-24)

LEGEND:

Empty	
Product	
Water	
Sludge	

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Falcon Refinery

Date: October 11, 2004

Section: Monthly Progress Report # 3

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N1 – 8/31/04 – 2:30pm

Tank height = 15'5"

Tank diameter = 12'

Depth to product = 12'11"

Depth to sludge = 14'10"

Depth to water demarcation = 13'7"

Depth to sample 1 = 14'3"

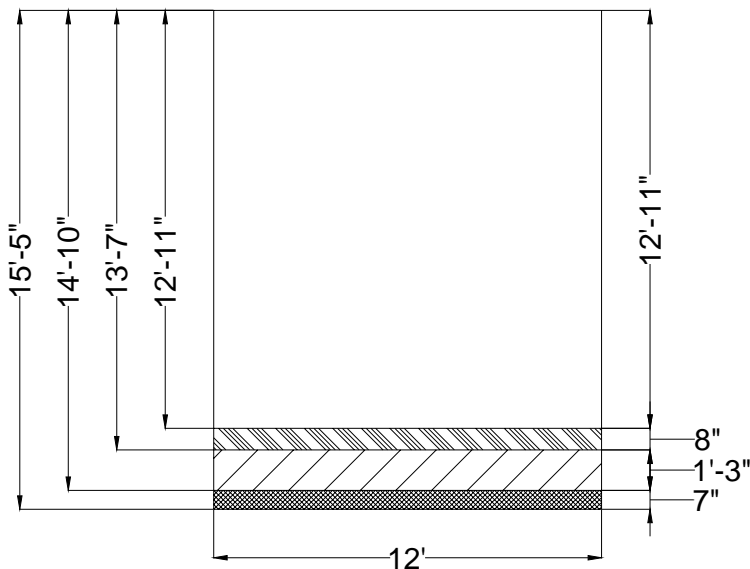
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 564.05 Gal.

Volume of Water = 1057.60 Gal.

Volume of Sludge = 493.55 Gal.



N2 – 8/31/04 – 3:30pm

Tank height = 15'5"

Tank diameter = 12'

Depth to product = 5'1"
(depth to sludge, no fluids present)

Depth to sludge = 15'5"
(bottom of tank)

Depth to water demarcation = N/A
(no fluids present)

Depth to sample 1 = 1'0"
(sample of sludge material)

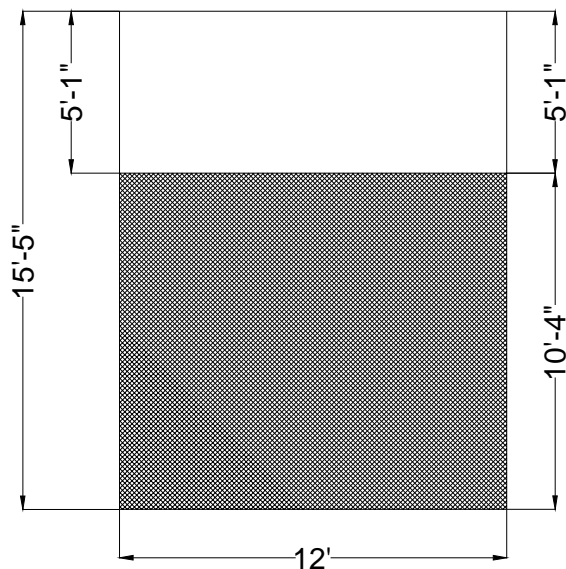
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 0 Gal.

Volume of Water = 0 Gal.

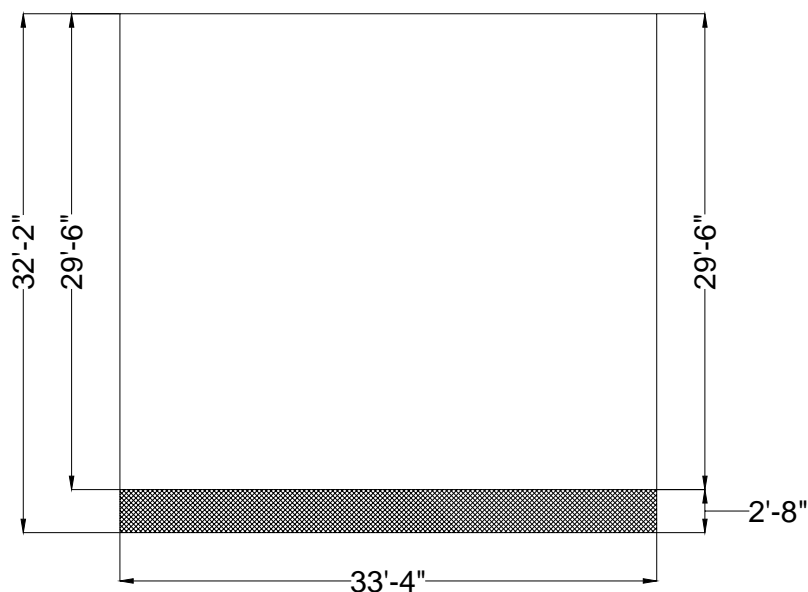
Volume of Sludge = 8742.84 Gal.



17 – 8/31/04 – 4:45pm

Tank height = 32'2"
 Tank diameter = 33'4"
 Depth to product = 29'6"
 (depth to sludge, no fluids present)
 Depth to sludge = 32'2"
 (bottom of tank)
 Depth to water demarcation = N/A
 (no fluids present)
 Depth to sample 1 = 1'0"
 (sample of sludge material)
 Depth to sample 2 = N/A
 Depth to sample 3 = N/A

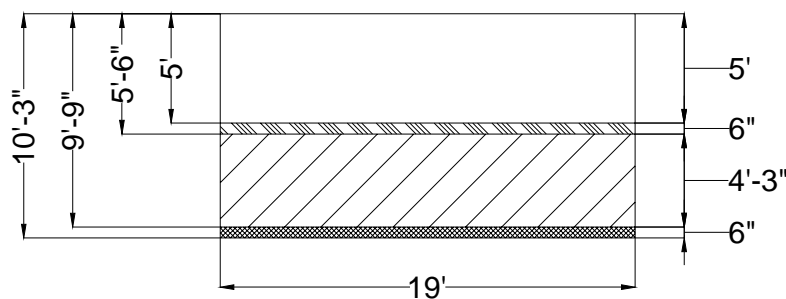
Volume of Product = 0 Gal.
 Volume of Water = 0 Gal.
 Volume of Sludge = 17409.11 Gal.



Y1 – 8/31/04 – 5:30pm (small tank SE of 21)

Tank height = 10'3"
 Tank diameter = 19'
 Depth to product = 5'0"
 Depth to sludge = 9'9"
 Depth to water demarcation = 5'6"
 Depth to sample 1 = 7'6"
 Depth to sample 2 = N/A
 Depth to sample 3 = N/A

Volume of Product = 1060.54 Gal.
 Volume of Water = 9014.59 Gal.
 Volume of Sludge = 1060.54 Gal.



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21 – 8/31/04 – 6:00pm

Tank height = 32'2"

Tank diameter = 33'4"

Depth to product = 5'0"

Depth to sludge = 31'9"

Depth to water demarcation = 5'1"

Depth to sample 1 = 6'0"

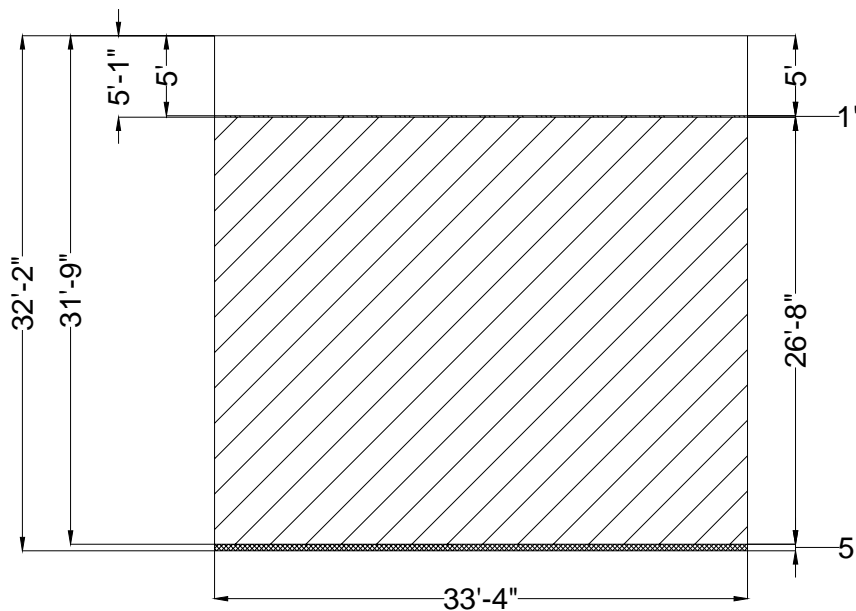
Depth to sample 2 = 15'0"

Depth to sample 3 = 31'0"

Volume of Product = 541.88 Gal.

Volume of Water = 174097.96 Gal.

Volume of Sludge = 2720.28 Gal.



18 – 8/31/04 – 6:30pm

Tank height = 32'2"

Tank diameter = 33'4"

Depth to product = 7'5"

Depth to sludge = 31'7"

Depth to water demarcation = 7'10"

Depth to sample 1 = 8'6"

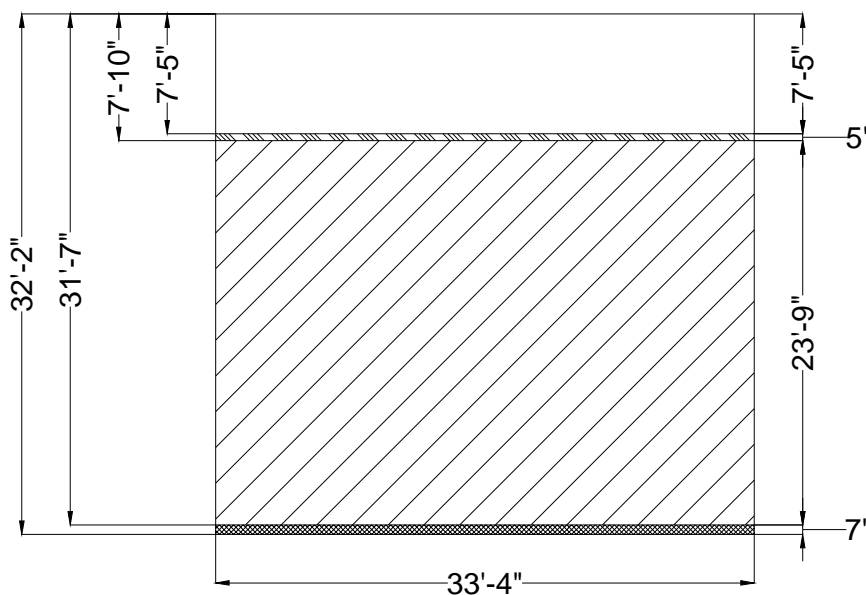
Depth to sample 2 = 20'0"

Depth to sample 3 = 31'0"

Volume of Product = 2720.28 Gal.

Volume of Water = 155050.22 Gal.

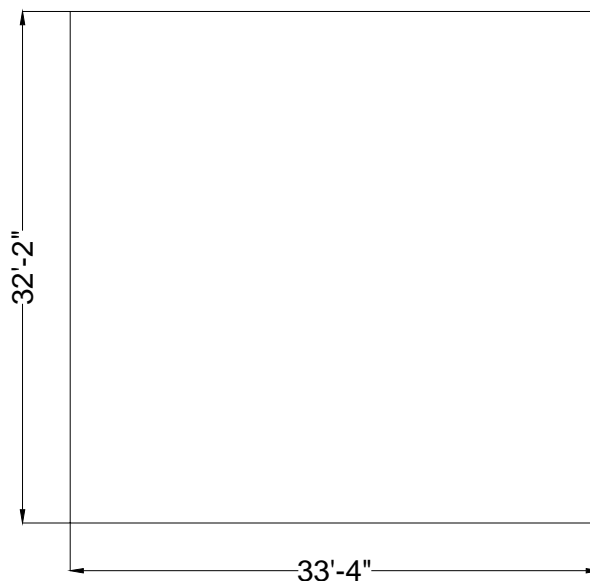
Volume of Sludge = 3808.23 Gal.



19 – 9/1/04 – 10:30am (empty tank)

Tank height = 32'2"
Tank diameter = 33'4"
Depth to product = N/A
Depth to sludge = N/A
Depth to water demarcation = N/A
Depth to sample 1 = N/A
Depth to sample 2 = N/A
Depth to sample 3 = N/A

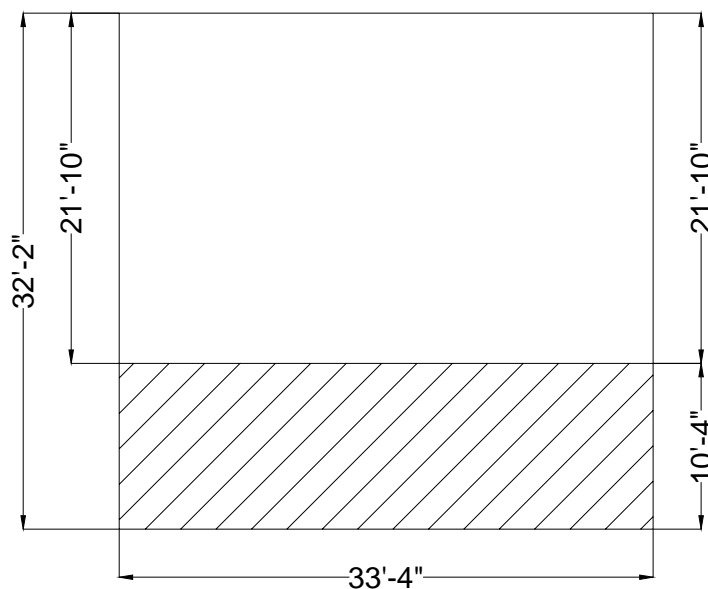
Volume of Product = 0 Gal.
Volume of Water = 0 Gal.
Volume of Sludge = 0 Gal.



23 – 9/1/04 – 10:45am

Tank height = 32'2"
Tank diameter = 33'4"
Depth to product = 21'10"
Depth to sludge = 32'2"
(bottom of tank, thin layer of sludge)
Depth to water demarcation = 21'10"
Depth to sample 1 = 23'0"
Depth to sample 2 = 26'0"
Depth to sample 3 = 31'0"

Volume of Product = 0 Gal.
Volume of Water = 67462.66 Gal.
Volume of Sludge = Negligible



22 – 9/1/04 – 11:00am

Tank height = 32'2"

Tank diameter = 33'4"

Depth to product = 28'4"

Depth to sludge = 32'2" (bottom of tank, thin layer of sludge)

Depth to water demarcation = 28'4"

Depth to sample 1 = 29'0"

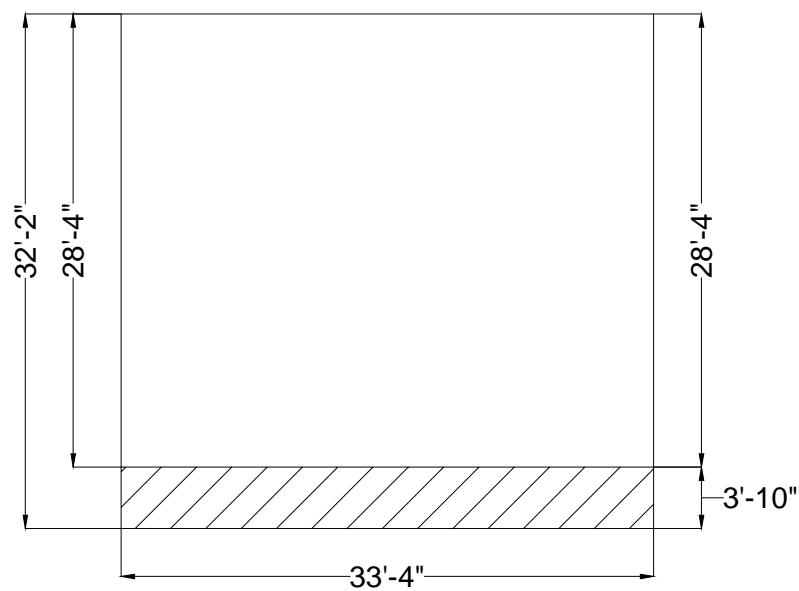
Depth to sample 2 = N/A

Depth to sample 3 = 31'0"

Volume of Product = 0 Gal.

Volume of Water = 25026.33 Gal.

Volume of Sludge = Negligible



20 – 9/1/04 – 11:45am

Tank height = 32'2"

Tank diameter = 33'4"

Depth to product = 1'0"

Depth to sludge = 31'8"

Depth to water demarcation = 6'0"

Depth to sample 1 = 2'0"

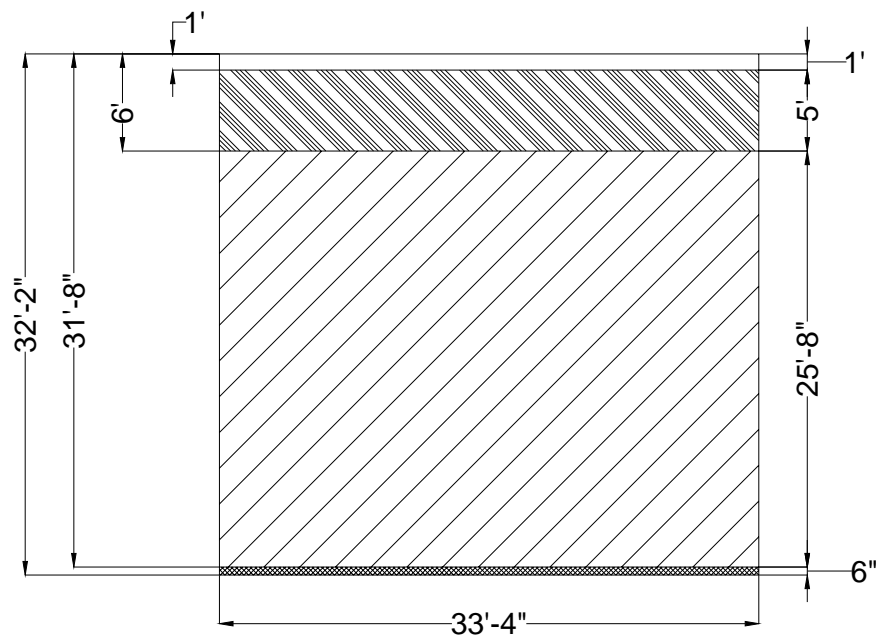
Depth to sample 2 = 15'0"

Depth to sample 3 = 30'0"

Volume of Product = 32642.15 Gal.

Volume of Water = 167569.29 Gal.

Volume of Sludge = 3264.33 Gal.



24 – 9/1/04 – 12:45pm

Tank height = 32'2"

Tank diameter = 33'4"

Depth to product = 3'6"

Depth to sludge = 31'8"

Depth to water demarcation = 3'6"

Depth to sample 1 = 4'5"

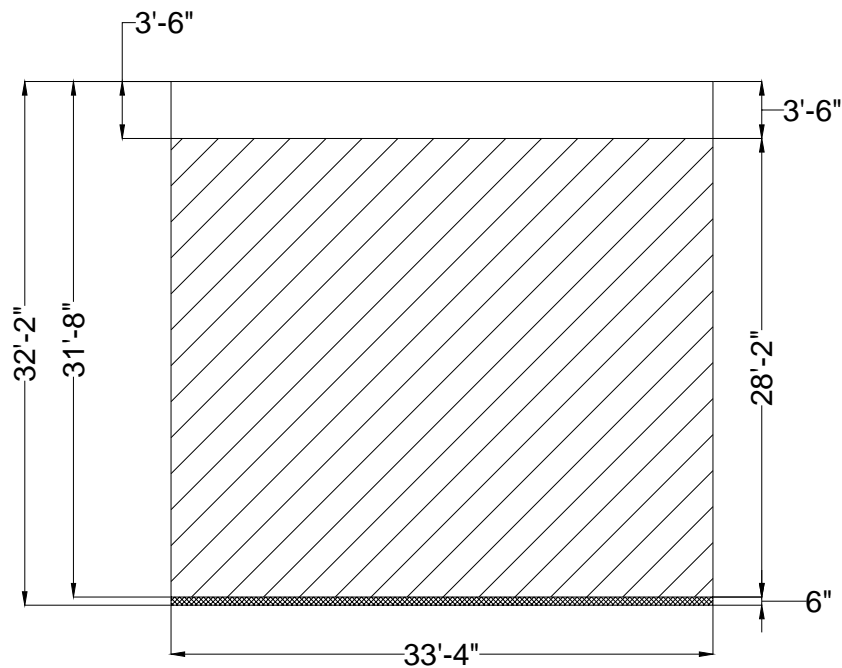
Depth to sample 2 = 16'0"

Depth to sample 3 = 31'0"

Volume of Product = 0 Gal.

Volume of Water = 183890.76 Gal.

Volume of Sludge = 3264.33 Gal.



30 – 9/1/04 – 4:10pm

Tank height = N/A (could not get measurement)

Tank diameter = N/A

Depth to product = 53'5"

Depth to sludge = 53'10"

Depth to water demarcation = N/A

Depth to sample 1 = N/A (sample attempted, could not collect)

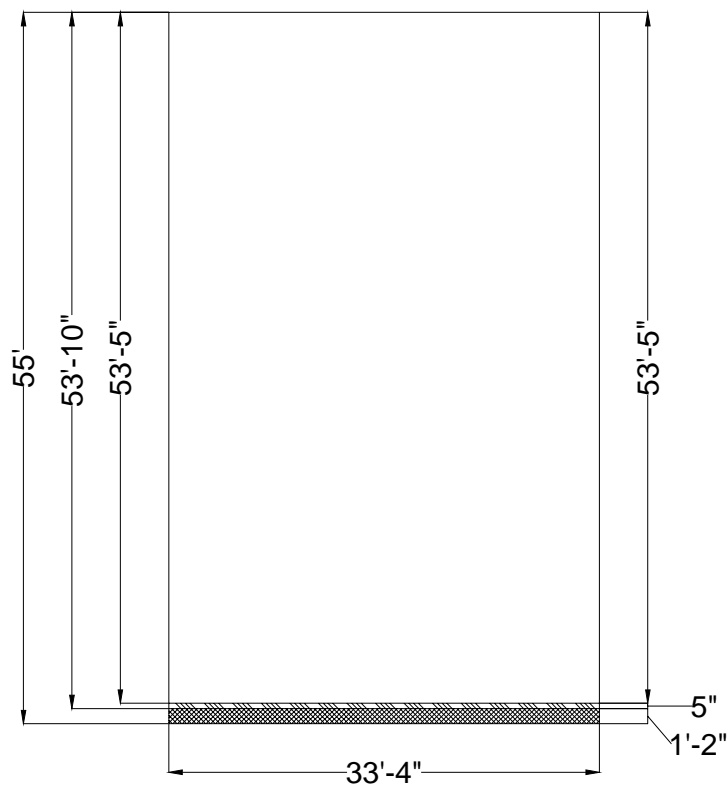
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 2720.30 Gal.

Volume of Water = 0 Gal.

Volume of Sludge = 7616.80 Gal.



7 – 9/1/04 – 5:30pm (internal floating roof; difficult access to sampling location)

Tank height = 32'0"

Tank diameter = 47'4"

Depth to product = 3'0" (top of internal floating roof)

Depth to sludge = 32'0" (bottom of tank, thin layer of sludge)

Depth to water demarcation = N/A

Depth to sample 1 = 5'0"

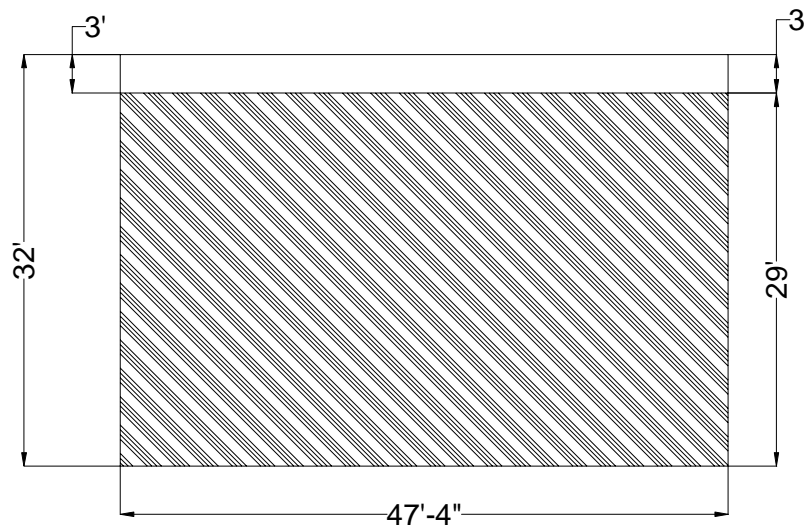
Depth to sample 2 = 16'0"

Depth to sample 3 = 30'0"

Volume of Product = ?

Volume of Water = ?

Volume of Sludge = ?



2 – 9/1/04 – 6:45pm

Tank height = 24'0"

Tank diameter = 50'

Depth to product = 12'3"

Depth to sludge = 23'9"

Depth to water demarcation = N/A (no detectable demarcation)

Depth to sample 1 = 14'0"

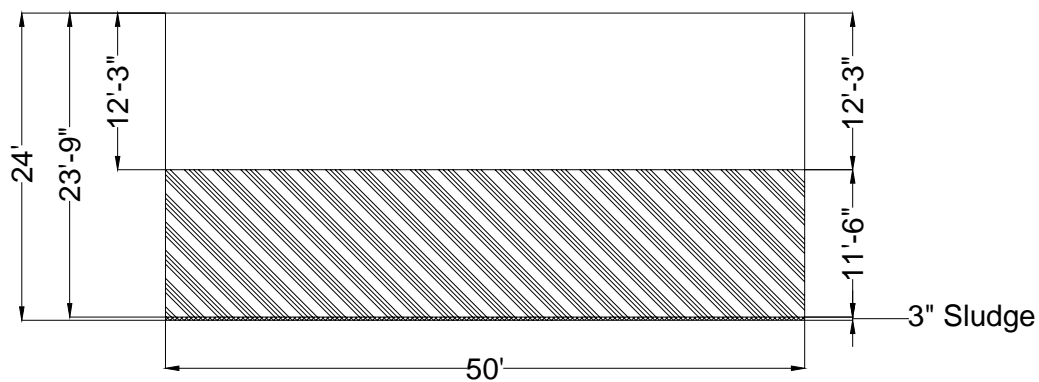
Depth to sample 2 = 19'0"

Depth to sample 3 = 23'0"

Volume of Product = 168922.46 Gal.

Volume of Water = 0 Gal.

Volume of Sludge = 490.87 Gal.



X3 – 9/2/04 – 9:30am

Tank height = 18'0"

Tank diameter = 16'6"

Depth to product = N/A (no fluids)

Depth to sludge = 17'3"

Depth to water demarcation = N/A

Depth to sample 1 = 17'6" (sample taken of sludge from ground level manway)

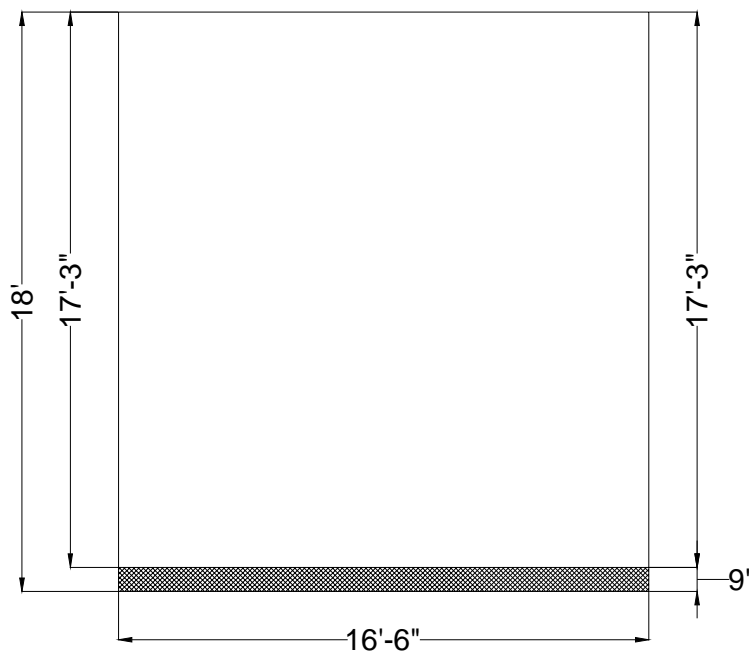
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 0 Gal.

Volume of Water = 0 Gal.

Volume of Sludge = 1199.72 Gal.



X2 – 9/2/04 – 9:30am

Tank height = 18'0"

Tank diameter = 16'6"

Depth to product = N/A (no fluids)

Depth to sludge = 17'2"

Depth to water demarcation = N/A

Depth to sample 1 = 17'6" (sample taken of sludge from ground level manway)

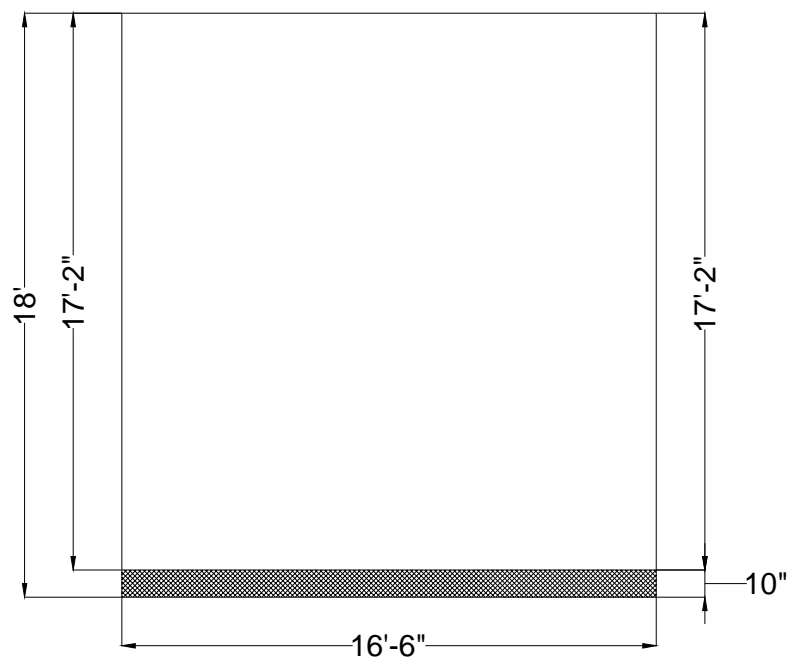
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 0 Gal.

Volume of Water = 0 Gal.

Volume of Sludge = 1332.97 Gal.



X1 – 9/2/04 – 9:30am

Tank height = 15'0"

Tank diameter = 16'6"

Depth to product = N/A (no fluids)

Depth to sludge = 13'10"

Depth to water demarcation = N/A

Depth to sample 1 = N/A (no access to obtain sample of sludge)

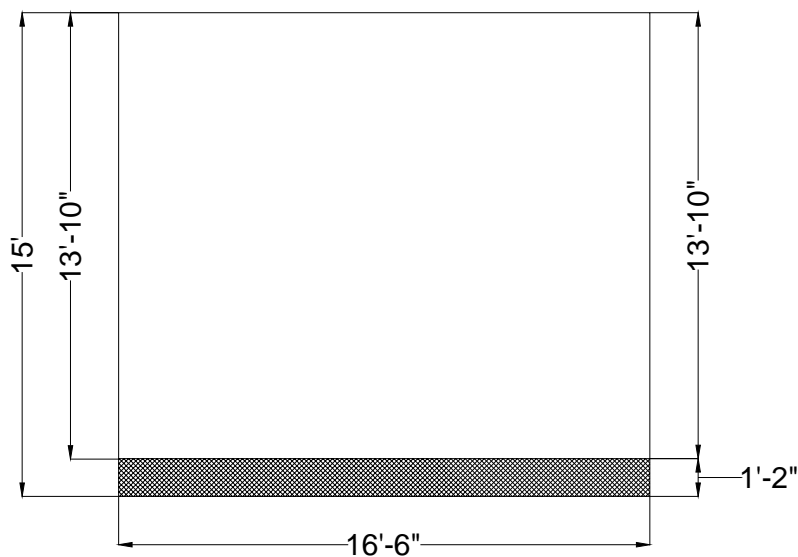
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 0 Gal.

Volume of Water = 0 Gal.

Volume of Sludge = 1866.23 Gal.



10 – 9/2/04 – 12:00pm

Tank height = 40'0"

Tank diameter = 94'6"

Depth to product = 36'0"

Depth to sludge = 40'0" (bottom of tank, thin layer of sludge)

Depth to water demarcation = N/A (attempted, could not obtain measurement, assume approx 6" layer of thick product)

Depth to sample 1 = 38'0"

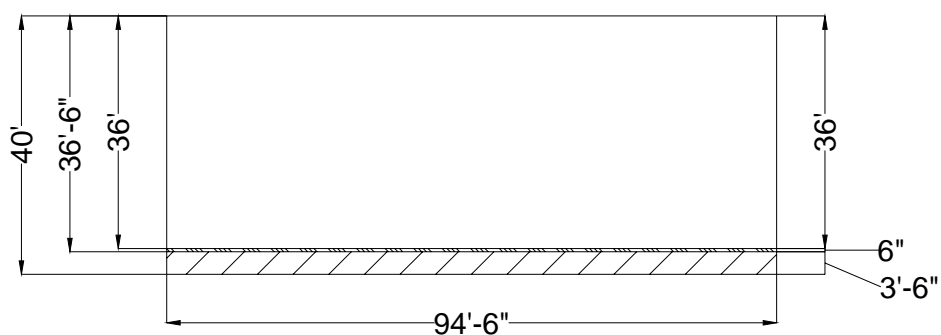
Depth to sample 2 = N/A

Depth to sample 3 = N/A

Volume of Product = 26235.13 Gal.

Volume of Water = 183645.88 Gal.

Volume of Sludge = Negligible



26 – 9/2/04 – 4:30pm

Tank height = 40'0"

Tank diameter = 107'9.5"

Depth to product = 0'0" (tank full)

Depth to sludge = 40'0" (bottom of tank, thin layer of sludge)

Depth to water demarcation = 0'0"

Depth to sample 1 = 2'0"

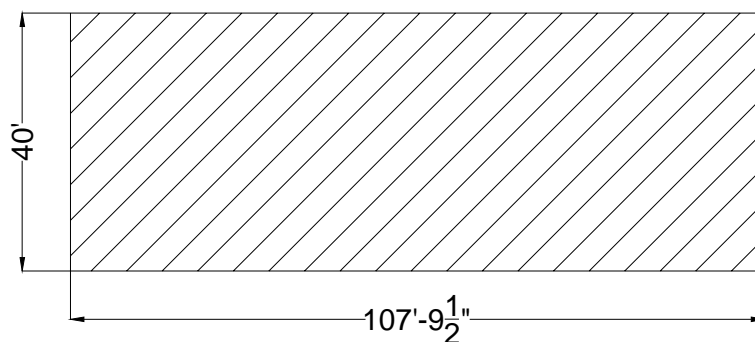
Depth to sample 2 = 20'0"

Depth to sample 3 = 38'0"

Volume of Product = 0 Gal.

Volume of Water = 2730754.06 Gal.

Volume of Sludge = Negligible



27 – 9/2/04 – 6:30pm

Tank height = 40'0"

Tank diameter = 107'9.5"

Depth to product = 0'0" (tank full)

Depth to sludge = 39'5"

Depth to water demarcation = 0'0"

Depth to sample 1 = 2'0"

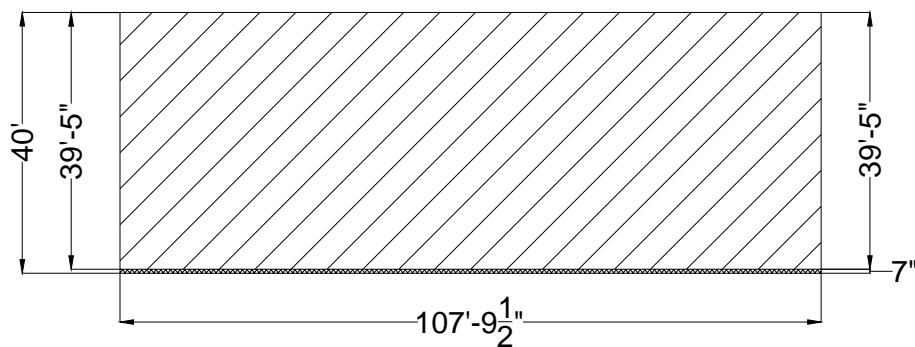
Depth to sample 2 = 20'0"

Depth to sample 3 = 38'0"

Volume of Product = 0 Gal.

Volume of Water = 2690930.79 Gal.

Volume of Sludge = 39823.27 Gal.



Appendix B

Compatibility Study

On September 9, 2004 this study was initiated. A total of 36 individual samples, collected from 17 tanks had been submitted to the laboratory. The study was conducted at room temperature which is approximately 70 degrees F in our extraction laboratory. There is quite a bit of subjectivity in this type of evaluation and, due to the wide variety of sample types, a pH measurement was not always appropriate nor was it possible to accurately describe the various layers. Naturally, due to the subjectivity of the observations, some opinions are expressed which may not be based on actual measurement. Additionally, in my experience in sampling tanks containing oil/water mixtures, it is difficult to take discrete layer samples without cross-contaminating samples. It is likely that some of the small amounts of oil seen in bottom layer, water samples is simply due to unavoidable contamination from lowering a sampling device through an oil layer.

Phase I – Sample Descriptions and Intra-Tank Compatibility

226504-1 – Tank N2, a single sample from this tank which was a thick, black, organic material with an asphalt-like appearance. Unable to evaluate pH.

226504-2 – Tank N1, a single sample from this tank which was an aqueous liquid with oily globules representing 1-3% of the volume of the sample. pH was 7 and the sample had a slight oily odor.

226504-3 – Tank 17, a single sample of a thick oil with a viscosity similar to 90 weight gear lube. pH not appropriate.

226504-4 – Tank 21B, a single sample of a coffee colored, aqueous liquid. The pH of the aqueous liquid was 14. This caustic liquid contained 3-4% of oily-like solids.

226504- 5,6,7 – Tank 21 top, middle and bottom respectively. All samples consisted of a yellowish, aqueous liquid. The top sample contained approximately 1-2% oil with smaller amounts of oil in the other samples. This may be due to cross contamination of the sampling device. The pH was 7 in each of the 3 layers. No change in temperature or pH was noted after combining 20 ml of each layer. No visible reaction was noted.

226504- 8,9,10 – Tank 18 top, middle and bottom respectively. All samples consisted of a clear, aqueous liquid with both the middle and bottom samples having a small amount of an amber, oily material clinging to the sides of the jar. The bottom sample had one-half inch of a solid granular material which had a charcoal like appearance. All layers had a pH of 9. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504- 11, 12, 13 – Tank 20 top, middle and bottom respectively. All samples consisted of an amber, aqueous liquid with some dark oil present in each sample. More oil was found in the top sample. The pH was found to be 14 in each layer. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 – 14, 15 – Tank 22 top and bottom respectively. Both samples contained a clear aqueous liquid with a small amount of oil in the bottom sample. The pH was 7 in both samples and both had a slight oily odor. Mixing these two samples failed to show a temperature or pH change and there was no visible reaction.

226504 - 16, 17, 18 – Tank 23 top, middle and bottom respectively. All three samples were a clear aqueous liquid with $\frac{3}{4}$ inch of black sludge in the bottom sample. The pH was 8 in each layer. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 - 19, 20, 21 – Tank 24 top, middle and bottom respectively. All three samples were a clear, amber colored aqueous liquid. No oil was present. pH of all samples was 8. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 - 22, 23, 24 – Tank 2 top, middle and bottom respectively. All three samples consisted of a mostly aqueous liquid with thick oil on the surface of each layer, especially the top sample which contained approximately 2 inches of oil. The pH of each aqueous layer was 7. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 – 25, 26, 27 – Tank 7 top, middle and bottom respectively. The top sample has 2 inches of oil over an aqueous liquid. The oil has a viscosity of used motor oil, the middle sample has $\frac{1}{2}$ inches of oil over an aqueous layer. The pH was 7 in each aqueous layer. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 - 28, 29, 30 – Tank 27 top, middle and bottom respectively. All three layers consisted of an amber colored, aqueous liquid with oil present in each layer, especially in the top. It may be likely that the oil is simply a cross-contamination that occurred during sampling. There were some solids found in each sample, mostly in the bottom sample with a $\frac{1}{4}$ inch layer. The oil was mostly clinging to the sides of the jar. The pH in each of the samples was 7. There was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 – 31, 32, 33 – Tank 26 top, middle and bottom respectively. The top layer has a 4 inch layer of oil, a viscosity similar to 90 weight gear lube, over a one inch aqueous layer. The middle sample was a one inch layer of similar oil over a 4 inch aqueous layer. The bottom layer had one inch of a much less viscous oil over 5 inches of aqueous liquid. The pH of each aqueous layer was 7 and there was no change in temperature or pH when the layers were combined, nor was there any visible reaction.

226504 – 34 – Tank 10. Single sample from this tank consisted of a one inch oil layer over a clear aqueous liquid with a pH of 7.

226504 – 35 – Tank X2. A single sample of a mostly solid, asphalt like material. Unable to evaluate pH.

226504-36 – Tank X3. A single sample of a mostly solid, asphalt like material, nearly identical to sample #35 but with a slight solvent odor that sample #35 did not have. Unable to evaluate pH.

Phase II – Inter-Tank Reactivity

On September 10, 2004 the second phase of the evaluation was conducted. The mixtures made the previous day were evaluated for pressure build-up or any visible change. No changes were evident.

The evaluation was conducted by combining the aqueous samples and the tank mixtures into a single jar followed by adding portions of the samples which were totally organic. The order of tank combination was: Tank N1, Tank 21B, (at this point the pH of the mixture was measured at 14) Tanks 21, 18, 20, 22, 23 (at this point there was some slight precipitation), 24 (at this point the pH was measured at 13), Tank 2, 7, 27, 26, and 10. At this point the mixture was a clear amber liquid with about two inches of oil on the surface. The pH was 13, there had been no temperature change and there was no sediment in the bottom of the jar. At this point portions of the organic samples were added to the jar. These included chunks of sludge from Tanks X2, X3, N2 and Tank 17. These materials floated on the surface but showed no additional reaction.

After 4 hours, a flocculent formed and settled in the bottom of the jar. The material was colloidal in nature, forming a layer approximately ½ inch in depth and consisting of a fine tan-colored, fluffy solid. No other changes were noted. After 24 hours and again after 72 hours observations were made and no additional reactions or changes had occurred.

In summary, the only evidence of a chemical or physical change resulting from combining these materials in the laboratory was the flocculation that occurred in the aqueous layer. Additionally, the pH of the aqueous layer was raised to the 13-14 range due to the caustic nature of the liquid in Tanks 21B and 20.